

IN THE CLAIMS

1. (Previously Presented) An apparatus comprising:

a network processor capable of performing packet switching and routing functions, said network processor having a plurality of processors wherein selected ones of said processors are programmed to provide test system functionality;  
storage associated with said network processor;  
an interface coupling said network processor to a communications network; and  
instructions and data within said storage, said instructions and data directing said network processor to function as a packet capture and analysis tool used to analyze packets on said communications network.

2. (Original) The apparatus of claim 1 wherein said data and instructions direct said network processor to analyze Real Time Transport Protocol (RTP) packet streams on said communications network.

3. (Previously Presented) The apparatus of claim 1 wherein said data and instructions direct said network processor to analyze packet streams for other protocols, said other protocols selected from the group comprising TCP, UDP, TCP/IP, SCTP, MGCP, H.323 and H.248.

4. (Previously Presented) The apparatus of claim 1 wherein said data and instructions direct said network processor to analyze a signaling protocol packet stream on said communications network.

5. (Previously Presented) The apparatus of claim 1 wherein said packets are analyzed for characteristics selected from the group consisting of total packets, bytes per second and number of RTP streams present.

6. (Previously Presented) The apparatus of claim 1 wherein said packets are analyzed to provide performance statistics of streams of packets on said communications network.

7. (Previously Presented) The apparatus of claim 6 wherein said statistics are selected from the group consisting of call rate, call aborts, call setup to audio time, call establish time, call release time, and call duration.

8. (Previously Presented) The apparatus of claim 1 wherein said packets are analyzed to provide audio statistics, said audio statistics selected from the group consisting of minimum average packet jitter, maximum average packet jitter, number of packets lost, number of re-ordered packets, number of duplicate packets, number of packet errors, an audio encoding algorithm, packets per second, audio data per packets and number of packets.

9. (Previously Presented) The apparatus of claim 1 wherein said packets are analyzed as groups of streams to provide group statistics, said group statistics selected from the group consisting of maximum average packet jitter across all streams in the group, average packet jitter across all streams in the group, maximum number of packets lost across all streams in the group, average number of packets lost across all the streams in the group, maximum number of packets re-ordered across all streams in the group, average number of packets re-ordered across all streams in the group, maximum number of packets duplicated across all the streams in the group, average number of packets duplicated across all the streams in the group, maximum number of packet errors across all the streams in the group, average number of packet errors across all the streams in the group, breakdown of streams by audio encoding, maximum length of time, average length of time, and average payload size.

10. (Previously Presented) The apparatus of claim 1 wherein said packets are analyzed to provide interface characteristics, said interface characteristics selected from the group consisting of maximum number of simultaneous active streams of packets, average number of simultaneous active streams of packets, current number of active streams, total number and rate of packets, total number and rate of bytes, maximum percent usage of interface bandwidth average percent usage of interface bandwidth, and total number and rate of error packets.

11. (Previously Presented) An apparatus comprising:

- a network processor capable of performing packet switching and routing functions, said network processor having a plurality of processors wherein selected ones of said processors are programmed to provide test system functionality;
- storage associated with said network processor;
- an interface coupling said network processor to a communications network; and
- instructions and data within said storage, said instructions and data directing said network processor to function as a packet capture and analysis tool used to provide profiles of network parameters.

12. (Previously Presented) The apparatus of claim 11 wherein said profiles of network parameters are selected from the group consisting of jitter, loss, delay, packet reordering and packet duplication.

13. (Previously Presented) An apparatus comprising:

- a network processor capable of performing packet switching and routing functions, said network processor having a plurality of processors wherein selected ones of said processors are programmed to provide test system functionality;
- storage associated with said network processor;
- an interface coupling said network processor to a communications network; and

instructions and data within said storage, said instructions and data directing said network processor to function as a packet capture and analysis tool used to capture packets on said communications network.

14. (Previously Presented) The apparatus of claim 13 wherein said packets are filtered such that only packets meeting a criteria are captured.

15. (Previously Presented) The apparatus of claim 14 wherein said criteria are selected from the group consisting of a source IP address, destination IP address, source UDP port number, destination UDP port number, interface port, audio encoding algorithm, MAC address, MAC Ethernet type, IP protocol number, IP differentiated services byte, and a specific byte mask pattern.

16. (Previously Presented) The apparatus of claim 13 wherein a trigger is used to start and/or stop packet capture.

17. (Previously Presented) The apparatus of claim 16 wherein said triggering is based on an event selected from the group consisting of a packet error, a start of a packet stream, an end of a packet stream, jitter greater than a threshold, a dropped packet, a duplicate packet, a re-ordered packet, a call signaling event, source IP address, destination IP address, source UDP port number, destination UDP port number, interface port, audio encoding algorithm, MAC address, MAC Ethernet type, IP protocol number and a specific byte mask pattern.

18. (Previously Presented) The apparatus of claim 13 wherein data stripping is used to remove unwanted data from a captured packet.

19. (Previously Presented) The apparatus of claim 18 wherein data stripping excludes data selected from the group consisting of packet header, packet payload, and partial payload.

20. (Previously Presented) The apparatus of claim 13 wherein said captured packets are post process analyzed.

21. (Previously Presented) The apparatus of claim 20 wherein said post process analyzing provides function selected from the group consisting of view filtering, data filtering, packet viewing and packet decoding.

22. (Previously Presented) An apparatus comprising:

a network processor capable of performing packet switching and routing functions, said network processor having a plurality of processors wherein selected ones of said processors are programmed to provide test system functionality;

storage associated with said network processor;

an interface coupling said network processor to a communications network; and

instructions and data within said storage, said instructions and data directing said network processor to function as a packet capture and analysis tool used to analyze packets on said communications network and wherein said packets are analyzed as groups of streams to provide group statistics, said group statistics selected from the group consisting of maximum packet jitter across all stream in the group, average packet jitter across all stream in the group, maximum number of packets lost across all the streams in the group average number of packets lost across all the streams in the group, maximum number of packets re-ordered across all streams in the group, average number of packets re-ordered across all streams in the group, maximum number of packets duplicated across all the streams in the group, average number of packets duplicated across all the streams in the group, maximum number of packet errors across all the streams in the group average number of packet errors across all the streams in the group, breakdown of streams by audio encoding, maximum length of time, average length of time, and average payload size.

23. (New) The apparatus of claim 1 wherein said network processor is further capable of providing lookup-table processing and queue management within a network switch or router.

24. (New) The apparatus of claim 11 wherein said network processor is further capable of providing lookup-table processing and queue management within a network switch or router.

25. (New) The apparatus of claim 13 wherein said network processor is further capable of providing lookup-table processing and queue management within a network switch or router.

26. (New) The apparatus of claim 22 wherein said network processor is further capable of providing lookup-table processing and queue management within a network switch or router.